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By-Vocolo, Joseph M.

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Achievement of former FLES students is compared with a matched group of non-FLES high school students completing an intermediate French course. The Modern Language Association (MLA) Cooperative French Tests were used to determine proficiency in the four language skills. Special attention is given to data analysis and the matching of groups in terms of intelligence, achievement, instruction received, and sex. (AF)

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The Effect of Foreign Language Study in the Elementary School Upon Achievement in the Same Foreign Language in the High School

JOSEPH M. VOCOLO, *Buffalo Public Schools, New York*

THIS study was concerned with achievement in French made by two matched groups of pupils at the intermediate level of instruction. One group of pupils had the FLES experience and the second group had the one year of elementary French which customarily precedes the intermediate level. The study sought to determine what effect, if any, a FLES program in French had on later study in that same language in high school and whether or not pupils who had experienced a FLES program were more proficient in the foreign language than pupils experiencing the more traditional high school foreign language sequence.

Of primary importance in conducting this study were several basic considerations. These included identifying and establishing the experimental group, insuring a compatible control group, and selecting a valid and reliable instrument.

Establishing the experimental group was not a difficult task because the students in the FLES program were readily available. The experimental group consisted of those students who had had the FLES sequence grades five-eight and were in grade nine and in the intermediate level of French. These students were located in three schools, Bennett, Kensington, and Riverside High Schools. In this group there were thirty-one students, thirteen boys and eighteen girls.

One important consideration regarding the make-up of the experimental and control groups was the hearing, sight, and speech of each member of the group. Since much of the foreign language programs involves making sound discriminations and oral production, the results of the study could have been critically affected if members of either group had abnormalities in these areas. A thorough examination of each pupil's health record in the permanent record folder revealed no hearing, sight, or speech problems.

Determining the membership of the control group involved many considerations, as this group was to be as identical as possible to the experimental group. Among the factors considered in establishing this group were the following: foreign language level, intelligence and achievement, school and neighborhood, sex, and instruction received.

The students in the control group were all in the intermediate level of French as were the FLES-trained students. Thus, both groups of pupils were studying French at the same language level, the FLES group with a background of experience in French studies in the elementary school, the non-FLES group with the usual one year of elementary French which precedes the intermediate level.

The intelligence and achievement of the control group, as well as of the FLES group, were ascertained by using the results of two instruments, the Lorge-Thorndike IQ and grade point average.

In order to minimize the difference, if any, in social class level, it was felt necessary to select in the experimental and control groups equal numbers of boys and girls from each of the schools involved in the study. Furthermore, in determining the make-up of the control group the sex factor was considered to be extremely important. Since some studies indicate that girls, as a rule, do better in English and in foreign language classes, and as a group are better adjusted to school work than boys, it was decided to establish the control group with the exact same distribution of boys and girls from each participating school as the experimental group.

The study involved the students of a total of three teachers, one in each of the three

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Buffalo high schools. The same three teachers worked with the students from the experimental and control group in their respective school building. This was done to insure that the instruction for both groups would be as nearly similar as possible.

The *MLA-Cooperative French Test* was the instrument selected to measure achievement and facility in French. This battery of tests measures listening, speaking, reading, and writing skills, precisely the four areas of interest to this study.

All of the tests of the *MLA-Cooperative French Test* were administered in the spring of 1965, as recommended by the Educational Testing Service. They were administered and scored by the teachers involved in the study under the supervision of the Director of Foreign Languages. The listening and speaking tests were provided by tape recordings accompanying the examination. Each paper was scored three separate times, first by the pupil's teacher, then by the Director of Foreign Languages, and once again by the group as a whole, and a consensus score was given.

The scores made by each pupil on the four tests provided valuable raw data in the areas proposed for measurement. A three way analysis of the data was made. The three dimensions were: (1) experimental and control, (2) sex, (3) various language skills—listening, speaking, reading, and writing.

Distribution of Pupils

Table 1 indicates the distribution in various school buildings of both the experimental and control groups and the categories of male and female. There are equal numbers of pupils in either group in each school building. Furthermore, the ratio of male to female is equal in each school building and in the total group for both experimental and control groups.

The table of distribution of pupils provides information of critical importance to the study. First of all, it shows that, as much as possible, instruction received by either group in each school building was similar. Pupils from either group in each school had the same teacher and in fact were in the same classroom. The teacher was generally unaware that his pupils were different with respect to FLES and non-FLES backgrounds. Secondly, since the numbers of pupils in the two groups were equal in each of the three schools, any socio-economic, community, or ethnic influences which could affect the study were offset to some extent. Thirdly, the equal distribution of males and females in the two groups would minimize any achievement attributable to superiority in certain subjects or better adjustment to school work of one sex over the other.

Table 1

Distribution in School Buildings of Pupils in FLES and Non-FLES Groups

Schools	FLES	Non-FLES
Bennett N	14	14
boys	5	5
girls	9	9
Riverside N	8	8
boys	3	3
girls	5	5
Kensington N	9	9
boys	5	5
girls	4	4
Total N	31	31
boys	13	13
girls	18	18

Comparable Groups

The comparability of the two groups in terms of intelligence and achievement was established by the Lorge-Thorndike Test of intelligence and the grade point average. Excluded from the grade point average were the grades obtained in the French course. The data obtained from the Lorge-Thorndike and grade point average are reported in Tables 2 and 3.

It is interesting to note that the mean IQ for both FLES and non-FLES groups is decidedly above average.

The grade point average is calculated from the individual marks of the pupils. There is a uniform marking system in each subject in each year. The sum of the marks divided by the number of marks is the grade point average.

For the purpose of this study the marks received in the French courses were not computed in the grade point average. The grade point average was calculated from the marks received by the pupils in both groups for the years 1960–1965, the five years in which the

TABLE 2

MEAN IQ
LORGE-THORNDIKE

Schools	FLES	Non-FLES
Bennett	129.9	130.4
boys	130.8	127.7
girls	129	133
Riverside	135.1	131.1
boys	137.6	128.6
girls	132.6	133.6
Kensington	116.1	117
boys	114	115
girls	119	119
Total	127	126.2
boys	127.5	123.8
girls	126.9	128.5

TABLE 3

MEAN GRADE POINT AVERAGE
(FRENCH GRADES EXCLUDED)

Schools	FLES	Non-FLES
Bennett	92.4	91.8
boys	93.2	90.9
girls	91.7	92.6
Riverside	91.4	91.5
boys	89.2	91.6
girls	93.5	91.4
Kensington	89.3	88.7
boys	87.6	86.7
girls	91.4	90.9
Total	91.0	90.7
boys	90.0	89.7
girls	92.2	91.6

FLES group was involved in the French program. This included grades five through nine.

ANALYSIS OF DATA

The tests of significance in achievement in the four areas of listening, speaking, reading, and writing French have been taken at the 95 percent level. In other words, it was decided to reject the null hypothesis of no difference between the means achieved by the FLES and non-FLES groups on each of the four MLA tests at the .05 level of significance. The chance that a statistic or statistics will be different from a hypothesized statistic is 95 to 5.

Reading Test

The reading test measures skill in reading comprehension and knowledge of words and idioms. The pupil is required to complete sentences that show his knowledge of vocabulary. To demonstrate his knowledge of phrase discrimination and ability to draw conclusions he is asked to answer questions based on reading selections from periodicals and literary sources.

Table 4 shows the mean scores, standard deviations, and results of the t-test for the FLES and non-FLES groups administered the MLA French Reading Test, Form LA.

TABLE 4

MEAN SCORES, STANDARD DEVIATIONS, AND RESULTS OF T-TEST MLA FRENCH READING TEST

	FLES	Non-FLES
boys	M=36.2	M=31.0
girls	M=39.2	M=38.3
Total	M=38.1	M=35.1
	SD= 7.14	SD= 7.54

t=1.56. Not significant at the .05 level.

The FLES group achieved a higher mean score on the MLA French Reading Test than did the non-FLES group. Analysis of the differences in the raw scores of the two groups using the t-test indicates that the difference in performance on this instrument is not significant at the .05 level. Thus the null hypothesis of no difference between FLES and non-FLES groups is not rejected. It is worth noting, however, that the difference in mean score between groups is significant at the .15 level and perhaps a larger end or sample size would yield a higher level of significance. Educational Testing Service, publishers of the *MLA-Cooperative Foreign Language Tests*, speaking of the significance of score differences has noted: "In order to draw the conclusion that one student is significantly higher than another, the test user is given the rule of thumb that their scores should differ at least to the extent that their percentile bands do not overlap. This rule derives from the fact that the difference in scores would, in such instances, be equal to 1.4 times the standard error of the difference in scores, corresponding to a level of significance of about .16. It is noted that this level of significance is a less stringent level than is usual in educational and psychological ex-

periments. However, in the case of the practical and professional evaluation of individual differences, it is felt that it is preferable to err on the side of the identification of differences that do not in fact exist, than it is to risk the chance that true differences are not discovered."

In both FLES and non-FLES groups, the girls outperformed the boys and achieved a greater mean score than the mean for the entire group. These findings support the view that girls do better than boys in reading whether it be the native language or a foreign language. Finally, the non-FLES girls achieved a slightly higher mean score than the total FLES group but a lower mean score than the FLES girls.

More significant is the value of the FLES experience as shown by the comparison in achievement between boys and girls in the FLES and non-FLES groups. Note the difference between the two groups. FLES girls outperformed the FLES boys by three points while the non-FLES girls achieved a mean score 7.3 points greater than the non-FLES boys. The difference between boys and girls is less in the FLES group which seems to indicate that FLES experiences are of relatively greater value to boys than to girls. The smaller margin of difference between boys and girls in the FLES category is probably due to the fact that advantages in reading skills in English attributed to girls is of little or no consequence in the FLES program since reading does not play a major role in FLES. Conversely, FLES boys are not handicapped because of alleged reading inferiorities. On the other hand, the reading advantage in English claimed for girls appears to be a factor as shown by the results of the reading test, especially in the non-FLES group. This is borne out again by Table 4 in which FLES boys are compared with non-FLES boys and FLES girls are compared with non-FLES girls. FLES boys achieved a mean score of 36.2 compared to a mean score for non-FLES boys of 31.0, a difference of 5.2 points, whereas FLES girls outperformed non-FLES girls by less than one point, 39.2 to 38.3, a difference of .9 points.

Writing Test

The writing test is designed to test writing skills in a variety of ways. It is, in effect, a test of power and proficiency in that it checks knowledge of grammar and vocabulary. The pupil is asked to fill in blanks to demonstrate his knowledge of function words such as articles, prepositions, and others. He is also required to rewrite sentences, making changes in tense, number, person, and word order. Finally, he writes a dialogue that is based on a situation with which he is supplied.

Table 5 reports the mean scores, standard deviations, and results of the t-test for the experimental and control groups on the MLA French Writing Test, form LA. The FLES group performed significantly better on this test than did the non-FLES group. The difference in mean score of 13.3 points between the two groups is significant at the .01 level. Thus the null hypothesis of no difference between groups is rejected.

TABLE 5

MEAN SCORES, STANDARD DEVIATIONS, AND RESULTS OF T-TEST MLA FRENCH WRITING TEST

	FLES	Non-FLES
boys	M=57.0	M=42.7
girls	M=67.9	M=56.0
Total	M=63.5	M=50.2
	SD=16.2	SD=19.1

t=2.87. Significant at the .01 level.

The difference in mean score between FLES and non-FLES groups is greater on the writing test than on the reading test. The difference between boys and girls in both groups is also more pronounced on the writing test.

The mean score recorded by the non-FLES girls on the writing test, 56.0, is the highest in the non-FLES category. However, unlike the results on the reading test, it exceeds no score in the FLES group and is 11.9 points lower than the FLES girls. On the reading test the FLES girls outperformed non-FLES girls by a mean score of only .9 points. Therefore, the results of the writing test would seem to indicate that the FLES experience was of greater relative value to girls in the development of writing skills in French when a comparison is made with the achievement by FLES and non-FLES girls on

the reading test. This finding is probably explained by the fact that reading has long been recognized as the skill most readily acquired in foreign language learning. In the study of French, knowledge of cognates would also be a factor in reading comprehension and reading skills in English would transfer in the reading of French. The typical two-year sequence of foreign language study (prevalent before the advent of the audio-lingual method) which stressed reading was a practical recognition of this fact. Writing, on the other hand, is a productive skill and involves recall of language structure and vocabulary which may often be in contrast to the native language. The prolonged exposure to French in the FLES program would afford the girls (and boys) added time to assimilate more thoroughly those peculiar aspects of French structure and vocabulary. The fact that the girls, experimental and control alike, did better than the boys is probably related to advantages in reading English attributed to one sex over the other.

A further comparison of the two groups shows that FLES boys achieved a mean score 14.3 points greater than non-FLES boys, while FLES girls outperformed non-FLES girls by 11.9 points. Also, within groups, FLES girls scored 10.9 points higher than FLES boys, while non-FLES girls achieved a mean score 13.3 points greater than non-FLES boys. As with the reading test, the results would appear to indicate that boys made greater gains on the writing test attributable to the FLES experience. The margin of difference between experimentals and controls is greatest in the case of the boys and the difference between boys and girls is narrowed in the FLES category.

Once again the view which would concede to girls advantage in the acquisition of language skills would explain the greater achievement by FLES and non-FLES girls. The fact that the boys recorded the largest margin of difference in mean score when compared with their controls would appear to be directly related to the FLES experiences where advantages in the native language are of relatively less importance.

Listening Test

The listening test evaluates the pupil's ability to comprehend oral French utterances, questions, and conversations. He hears the content of the test questions from a tape recording and attempts to make an appropriate response. To reply, the pupil makes use of multiple-choice answers printed in his test booklet. Basically, the listening test measures the learner's ability to perceive aurally, without the aid of the printed word, French sounds, vocabulary, and structures.

Mean scores, standard deviations, and the results of the t-test for the two groups on the MLA French Listening Test, form LA are given below in Table 6. The FLES group once again performed significantly better than did the non-FLES group. The difference in mean score between the two groups of 4.5 points is significant beyond the .05 level using the t-test of significance.

TABLE 6

MEAN SCORES, STANDARD DEVIATIONS, AND RESULTS OF T-TEST MLA FRENCH LISTENING TEST

	FLES	Non-FLES
boys	M=29.7	M=24.3
girls	M=30.8	M=27.7
Total	M=30.7	M=26.2
	SD= 6.20	SD= 6.55

t=2.73. Significant at the .02 level.

The difference in mean score between FLES and non-FLES groups is greater on the listening test than on the reading test, but not as great as the difference recorded on the writing test. These results are not surprising since the emphasis on aural-oral activities in the FLES program would be expected to have a greater effect on the development of listening skills. The greater margin of difference between experimental and control groups on the writing test is probably explained by the fact that writing skills in a foreign language are more difficult to develop since the pupil must generate the activity. Listening is a relatively passive experience and involves recognition of sounds, structures, and vocabulary, but no production of language is required.

The difference between FLES boys and non-FLES boys and FLES girls and non-FLES girls is not as pronounced on the listening as the

writing test. Both FLES and non-FLES girls achieved a greater mean score on the listening test then did their male counterparts. The margin of difference, however, was less than on the reading test, and substantially less than the writing test. In fact the difference in mean score on this test between boys and girls in the FLES group is only 1.1 points in favor of the girls. These results would appear to be related to the greater difficulty involved in developing writing skills and the value of the FLES experience as it effects listening and writing activities.

It would appear, again, that although the FLES girls achieved the highest mean score on the listening test, it was the FLES boys who gained the most. The difference in mean score between FLES and non-FLES boys is 5.4 points in favor of the former, while the difference among the girls is 3.1 points in favor of the FLES group.

The mean score achieved by the FLES girls on the listening test, as with the previous tests reported, exceeded the mean for the combined FLES group. Note, however, that the mean achieved by the FLES boys is only one point less than the combined FLES mean and two points higher than the non-FLES girls.

The margin of difference between boys and girls, experimentals and controls alike, on the listening test is the narrowest reported to this point. This is most likely due to the nature of the language activity. The development of listening skills in a FLES program or in an audio-lingual foreign language class at the secondary level involves little reliance on the native language. Therefore, any superiority in English claimed for girls would be neutralized in these programs. The fact that girls in both groups did record greater mean scores on the listening test is probably related to other factors such as maturity, school adjustment, and also the limitation of the sample.

Speaking Test

In the speaking test, the pupil hears instructions and questions given on tape and records his responses on another tape. He is asked to perform the following tasks on which he is evaluated for proper pronunciation and intonation: read short statements, read aloud from a printed script, give answers to spoken questions that refer to simple line drawings, describe, at some length, a picture or a series of pictures that convey a message or story.

The results of the speaking test are given in Table 7. Mean scores, standard deviations, and the results of the t-test are shown for FLES and non-FLES groups and for boys and girls within groups. The FLES group, once again, performed significantly better on the MLA French Speaking Test than did the non-FLES group. The difference in mean score of 10.5 points on this instrument between the two groups is significant beyond the .001 level using the t-test of significance.

TABLE 7

MEAN SCORES, STANDARD DEVIATIONS, AND RESULTS OF T-TEST MLA FRENCH SPEAKING TEST

	FLES	Non-FLES
boys	M=53.3	M=39.6
girls	M=53.7	M=46.4
Total	M=53.5	M=43.0
	SD= 7.27	SD= 6.84

t=5.65. Significant beyond the .001 level.

Experimental and control girls once again achieved a higher mean score than the boys. In the FLES category the mean scores, total, boys-girls, are all quite close; less than 0.5 separation between intervals. In the non-FLES category the difference between boys and girls is more or less similar to the results recorded on the other tests. The difference in mean score of 6.8 points between boys and girls is greater than on the listening test (3.4), less than on the reading test (7.3), and substantially less than on the writing test (13.3).

While data obtained from the speaking test continued to differentiate between non-FLES boys and girls, it appears that one effect of the FLES experience was the narrowing of the gap between boys and girls. The same effect was noticed on the listening test. These findings would seem to indicate that the FLES experience effectively minimized any advantages in English, school adjustment and others, claimed for girls as far as the development of speaking (and listening) skills in French is concerned.

The non-FLES girls achieved a mean score

on the speaking test 6.8 points greater than non-FLES boys, while the FLES girls outperformed their male counterparts by only 0.5 points. FLES girls outperformed non-FLES girls by 7.3 points, while FLES boys outpointed non-FLES boys by 13.6 points. The greatest gain recorded in mean score between experimentals and controls was again made by the boys. The difference of 13.6 points between FLES and non-FLES boys was second only to the difference recorded on the writing test (see Table 5) between experimental and control boys. On that same test, however, the combined difference between FLES and non-FLES was 13.3 points, and the difference between girls, 11.9. In other words great differences were recorded in all categories. Therefore, the difference of 13.6 points between experimental and control boys on the speaking test is of greater relative significance when all the results of the instrument are studied.

Summary of the Four Tests

Table 8, which summarizes the basic data for the experimental and control groups, includes mean IQ and grade point average as well as the mean scores of the four tests of the MLA French Test Battery.

Table 8

Mean Scores on MLA French Tests, Form LA for FLES and Non-FLES Groups

Measure	FLES	Non-FLES
Number	31	31
Mean IQ	127	126.2
Mean G.P.A.	91	90.7
Listening	30.7	26.2
Speaking	53.5	43.0
Reading	38.1	35.1
Writing	63.5	50.2

The performance of the group of pupils who had had the FLES experience on four MLA French Tests was compared to the performance on the same tests by a matched group of pupils who had not had a FLES experience. The FLES group achieved a higher mean score on all four MLA tests than did the group who began French in high school. Analysis of the differences in the mean scores of the two groups on each of the four MLA tests using the t-test indicates that the differences in performance are significant at the .05 level or beyond on all but the reading test. While the mean score on all four MLA tests for the FLES group exceeds the mean score of the non-FLES group, the difference is greatest in the areas of speaking and writing, 10.5 and 13.3 points respectively. The groups were closest on the reading instrument.

Table 9 compares the achievement of the boys and girls in both groups on the four skill tests. In all instances the FLES boys and girls achieved a greater mean score than their controls.

Table 9

Mean Scores MLA French Tests

Tests	FLES		Non-FLES	
	Boys	Girls	Boys	Girls
Listening	29.7	30.8	24.3	27.7
Speaking	53.2	53.7	39.6	46.4
Reading	36.2	39.2	31.0	38.3
Writing	57.0	67.9	42.7	56.0

The girls, experimental and control alike, achieved a greater mean score on all four MLA French tests than the boys. The margin of difference, however, was narrowed in the FLES group on all four tests, indicating that boys made the greatest gains, as measured by these tests, attributable to the FLES experience.

Summary

The present study focused on the effect of a FLES program in French on later performance in that same language in high school. Two groups of pupils, one exposed to a FLES program, and one which began French in high school, were administered the *Modern Language Association Cooperative French Tests* at the end of their intermediate level French course. The two groups were matched in terms of intelligence, achievement, instruction received, and sex. Results obtained indicate significant superiority for the FLES group in listening, speaking, and writing. No significant difference between groups is indicated in reading.

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